Amendments to the Claims:

1. (Currently Amended) A system for supplying compressed air to a combustion engine so as to boost power output by the combustion engine, said system comprising:

a compressor having a rotary compression device positioned in a housing defining an air inlet and a compressed air outlet, wherein the air inlet is configured to supply inlet air to the rotary compression device, wherein the rotary compression device is configured to compress the inlet air and wherein the compressed air outlet is configured to allow the compressed air to exit the housing for supply to an intake of the combustion engine;

a recirculation line arranged to recirculate a portion of the compressed air discharged from the compressed air outlet back to the compressor air inlet; ~~and~~

a recirculation valve disposed in the recirculation line and operable to control rate of flow through the recirculation line, the recirculation valve being controllable via control signals;

a programmed controller in communication with the recirculation valve and programmed to send control signals to the recirculation valve to open the recirculation valve so as to recirculate compressed air through the recirculation line to the compressor air inlet when the engine is operating below a threshold engine speed, and to maintain the recirculation valve closed so as to prevent recirculation when the engine is operating above said threshold engine speed; and

an air cooling device connected in fluid communication with the recirculation line and operable to cool the recirculated air upstream of the compressor air inlet, wherein the cooled air from the recirculation line is combined with the inlet air upstream of the compressor air inlet, the cooled recirculated air reducing occurrence of compressor surge.

2. (Original) A system of Claim 1, further comprising a compressor discharge line connecting the engine intake and the compressor outlet, wherein a first end of the recirculation line is connected to the compressor discharge line and wherein the air cooling device is

connected in fluid communication with the compressor discharge line upstream of the recirculation line first end and compressor discharge line connection.

3. (Original) A system of Claim 2, further comprising a recirculation valve disposed in the recirculation line and operable to control rate of flow through the recirculation line.

4. (Original) A system of Claim 3, further comprising a compressor inlet line connected to the compressor housing inlet, wherein a second end of the recirculation line is connected to the compressor inlet line.

5. (Original) A system of Claim 4, further comprising a mixing device connected to the recirculation line and the compressor inlet line and capable of mixing cooled, recirculated air from the recirculation line with inlet air from the compressor inlet line.

6. (Original) A system of Claim 5, wherein the mixing device is an air cleaner.

7. (Original) A system of Claim 5, further comprising an air cleaner connected to the compressor inlet line upstream of the mixing device.

8. (Original) A system of Claim 1, further comprising a compressor discharge line connecting the engine intake and the compressor outlet, wherein a first end of the recirculation line is connected to the compressor discharge line and a second end of the recirculation line is in fluid communication with the compressor air inlet, and wherein the air cooling device is disposed between the first and second ends of the recirculation line.

9. (Currently Amended) A system of Claim 8, ~~further comprising a~~wherein the recirculation valve is ~~connected to the recirculation line and~~ positioned between the first and second ends of the recirculation line, the recirculation valve being operable to control rate of flow through the recirculation line.

10. (Original) A system of Claim 9, further comprising a compressor inlet line connected

to the compressor housing inlet, wherein the second end of the recirculation line is connected to the compressor inlet line.

11. (Original) A system of Claim 10, further comprising a mixing device connected to the recirculation line and the compressor inlet line and capable of mixing cooled, recirculated air from the recirculation line with inlet air from the compressor inlet line.

12. (Original) A system of Claim 10, further comprising a mixing device connected to the compressor inlet line downstream of the recirculation line second end and compressor inlet line connection.

13. (Original) A system of Claim 12, wherein the mixing device is an air cleaner.

14. (Original) A system of Claim 1, wherein the air cooling device is an air cleaner.

15. (Original) A system of Claim 14, further comprising a compressor inlet line connected to the compressor housing inlet, wherein the recirculation line is connected to the compressor inlet line.

16. (Original) A system of Claim 15, wherein the air cleaner is connected to the compressor inlet line downstream of the recirculation line and compressor inlet line connection, and wherein the air cleaner is also configured to mix recirculated and inlet air.

17. (Original) A system of Claim 16, further comprising a compressor discharge line connecting the engine intake and the compressor outlet, wherein the recirculation line is connected to the compressor discharge line.

18. (Original) A system of Claim 17, further comprising a second air cooler connected in fluid communication with the compressor discharge line downstream of the recirculation line and compressor discharge line connection.

19. (Canceled)

20. (Original) A system of Claim 1, wherein the cooling device is a tip turbine fan.

21. (Canceled)

22. (Currently Amended) A system of Claim ~~21~~ 20, further comprising a compressor inlet line connected to the compressor housing inlet, wherein the recirculation line is connected to the compressor inlet line.

23. (Original) A system of Claim 22, further comprising a mixing device connected to the compressor inlet line downstream of the recirculation line and compressor inlet line connection.

24. (Original) A system of Claim 23, further comprising a compressor discharge line connecting the engine intake and the compressor outlet, wherein a first end of the recirculation line is connected to the compressor discharge line and a second end of the recirculation line is in fluid communication with the compressor air inlet, and wherein the air cooling device is disposed between the first and second ends of the recirculation line.

25. (Original) A system of Claim 24, further comprising an exhaust gas recirculation line connected to the compressor discharge line downstream of the recirculation line second end and compressor discharge line connection.

26. (Original) A system of Claim 25, further comprising an exhaust gas cooling device connected to the exhaust gas recirculation line.

27. (Original) A system of Claim 26, further comprising a second air cooling device connected to the compressor discharge line downstream of the recirculation line second end and compressor discharge line connection and upstream of the exhaust gas recirculation line and compressor discharge line connection.

28. (Currently Amended) A system for supplying compressed air to a combustion engine

so as to promote power output by the combustion engine, said system comprising:

a compressor having at least one inlet and at least one outlet, said inlet connected in fluid communication with an ambient air intake and said outlet in fluid communication with [[a]] an engine intake;

a recirculation line having a first end connected in fluid communication with the compressor outlet and a second end connected in fluid communication with the compressor inlet;

an air cooling device connected in fluid communication with the recirculation line and capable of cooling recirculated air upstream of the compressor inlet;

a recirculation valve disposed in the recirculation line and operable to control rate of flow through the recirculation line, the recirculation valve being controllable via control signals;

a programmed controller in communication with the recirculation valve and programmed to send control signals to the recirculation valve to open the recirculation valve so as to recirculate compressed air through the recirculation line to the compressor air inlet when the engine is operating below a threshold engine speed, and to maintain the recirculation valve closed so as to prevent recirculation when the engine is operating above said threshold engine speed; and

an air mixing device connected in fluid communication with the recirculation line between the air cooling device and the compressor inlet wherein the air mixing device is capable of mixing the cooled air and the ambient air upstream of the compressor housing inlet so as to reduce occurrence of compressor surge.

29-30. (Canceled)

31. (Currently Amended) A method of actively controlling compressor surge in an engine system wherein air is compressed in a compressor and supplied to an intake of an internal combustion engine, said surge controlling method comprising:

supplying air to ~~a compressor~~ an inlet of the compressor;

compressing the air in the compressor;

~~dividing the compressed air into main and recirculated air streams;~~discharging compressed air from the compressor through a compressor discharge line to the intake of the internal combustion engine;

providing a recirculation line connecting the compressor discharge line to the compressor inlet;

providing a controllable recirculation valve in the recirculation line for controlling an amount of flow through the recirculation line;

opening the valve and recirculating compressed air from the compressor discharge line to the compressor inlet when the engine is operating below a threshold engine speed, and maintaining the valve closed so as to prevent recirculation when the engine is operating above said threshold engine speed;

cooling the recirculated air; and

feeding the cooled recirculated air back to the compressor inlet.

32. (Original) A method of Claim 31, further comprising mixing the cooled recirculated air with the air being supplied to the compressor inlet such that flow conditions entering the compressor are more uniform than would exist without said mixing.

33-34. (Canceled)

35. (Currently Amended) A method of Claim ~~34~~ 31, wherein an amount of the valve opening (RVO) is a function of the engine speed and the outlet air pressure.

36. (Original) A method of Claim 35, wherein the amount of valve opening (V) is defined by:

$$RVO = A/Ne + B/P2C$$

wherein A and B are predetermined constants, Ne is the engine speed and P2C is the outlet air pressure.